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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/057,684	04/09/1998	HIROSHI HASEGAWA	BA-22580	6672

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BUCKNAM AND ARCHER
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EXAMINER

DIAMOND, ALAN D

ART UNIT PAPER NUMBER

1753

DATE MAILED: 11/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/057,684

Applicant(s)

HASEGAWA ET AL.

Examiner

Alan Diamond

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 07/634,054.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. The continuity data that appears on page 1 of the instant specification is in the wrong location. The continuity data should appear after the title and before the heading "Background of the Invention". It is also requested that applicant update the continuity data by providing patent numbers or indicating that the application is abandoned. For example, the continuity data should be amended so as to read as follows: "This application is a continuation-in-part of U.S. Serial No. 08/539,001 filed October 4, 1995 now U.S. Patent 6,582,621, which is a continuation of U.S. Serial No. 08/193,281 filed February 8, 1994 now abandoned, which is a continuation-in-part of U.S. Serial No. 08/019,177 filed January 28, 1993, now abandoned, which is a continuation of U.S. Serial No. 07/634,054 filed December 26, 1990 now abandoned."

Comments

2. The 35 USC 112, second paragraph, rejection of claims 21 and 22 has been overcome by applicant's amendment of the claims.
3. The prior art rejections over Kaimai, Sato et al, and Hagihara et al are moot since all of the instant claims are now fully supported by each of the instant parent applications as well as the certified English translation of Japanese foreign priority document 1-341244, which has a filing date of December 28, 1989. Said certified English translation is in the file wrapper of parent application 08/539,001. Accordingly, the instant claims have a foreign priority date of December 28, 1989, which antedates Kaimai, Sato et al, and Hagihara et al. To make the instant record complete, it is

Art Unit: 1753

requested that copies of the certified English translations for each of the instant Japanese foreign priority document be made of record in the instant application.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 13, at the last line, a pour point not higher than "10°C" is not supported by the specification as originally filed. It is suggested that said "10°C" be changed to "-10°C".

Claim Suggestions

6. In claim 7, at line 4, it is requested that the term "as a major component" be deleted since this term is not needed. Since claim 7 is closed by "consists" language, there are no other components to the refrigerator oil other than the pentaerythritol ester of formula (1). Thus, the pentaerythritol ester of formula (1) does not need to be called a major component of refrigerator oil. By deleting said term, claim 7 is still supported by the instant parent applications and English-translated foreign priority document.

Claim Objections

Art Unit: 1753

7. Claims 7, 9, 11, and 16 are objected to because of the following informalities: In claim 7, at the first line following the formula (1), the colon should be deleted. In claim 9, at the first line following the formula (1), the term "A, 5, 5" should be changed to "3,5,5". In claim 11, at the first line following the formula (1), the term ",3,5,5" should be changed to "3,5,5". In claim 16, at the last line, the term "-10°C" should be changed to -10°C. Appropriate correction is required.

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 1-3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamitis (U.S. Patent 2,807,155), in view of Midgley, Jr et al (Re. 19,265), and Slayton (U.S. Patent 4,178,765).

Williamitis teaches a fluid composition for a refrigerator, wherein the fluid composition contains a refrigerant such as disclosed in Midgley, Jr et al and, as the refrigerator oil, a pentaerythritol tetraester having the chemical formula given at col. 2, line 66 (see also col. 2, lines 23-56). Midgley, Jr et al is relied upon for showing the refrigerant can be a chlorine-free fluorocarbon (see the paragraph bridging pages 1 and 2 of Midgley, Jr et al). In said chemical formula at col. 2, line 66 of Williamitis, the R groups can be branched chain alkyl of preferably 6 to 10 carbon atoms (see the paragraph bridging pages 1 and 2 of Williamitis). Thus, based on this alkyl chain length, the use of 2-ethylhexanoic acid and 3,5,5-trimethylhexanoic acid to esterify the pentaerythritol is clearly within the scope of Williamitis' disclosure. Williamitis shows

Art Unit: 1753

conventional refrigerator oils having pour points of -10°F (i.e., -23°C) and -35°F (i.e., -37°C) (see the table at the bottom of col. 3). A pour point not higher than -10°C , e.g., of -20°C to -80°C is what one skilled in the art would seek to obtain for a refrigerant oil. Indeed, Slayton is relied upon for teach a pentaerythritol ester refrigerator oil having a pour point of -50°C (see col. 4, lines 4-6). Williamitis teaches the limitations of the instant claims other than the difference which is discussed below.

Williamitis does not provide a specific example where 2-ethylhexanoic acid and 3,5,5-trimethylhexanoic acid are together used to esterify the pentaerythritol. However, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used 2-ethylhexanoic acid and 3,5,5-trimethylhexanoic acid together to esterify the pentaerythritol since the use of such acids to esterify the pentaerythritol are within the scope of Williamitis' disclosure. Furthermore, in the absence of unexpected results, the selection of a molar ratio of 2-ethylhexanoic acid to 3,5,5-trimethylhexanoic acid, such as a 1:1 ratio in instant claim 3, would have been within the skill of an artisan with the expectation that a refrigerator oil would be obtained.

10. Claims 4, 6, 8, 9, 11, 12, 16, 17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamitis in view of Midgley, Jr et al and Slayton as applied to claims 1-3 and 7 above, and further in view of Kohashi et al (JP 62-292895). JP 62-292895 is already of record in the PTO-892 mailed January 19, 1999 and is an English translation. Said English translation is referred to below.

Williamitis in view of Midgley, Jr et al and Slayton, as relied upon for the reasons recited above, teaches the limitations of claims 4, 6, 8, 9, 11, 12, 16, 17, and 21 other than the presence of the instant conventional oil, the instant additive, and 0.1 to 5% by weight of an epoxy compound in the fluid composition. Kohashi et al teaches that other oils, such as paraffinic mineral oils, naphthenic mineral oils, alkylbenzene oils, and polyolefin oils can be used together with its pentaerythritol ester for refrigerating machine oils (see pages 2-3 of said English translation). Kohashi et al also teaches the addition of 0.05 to 10 wt% of a glycidyl ester to the refrigerator oil so as to suppress the corrosion of metal components of the refrigerator apparatus and stabilize the oil (see page 3, lines 12-36). Kohashi et al also teaches that additives such as antioxidants and antiwear agents can be used together with the glycidyl ester (see page 4, lines 18-19). Kohashi et al exemplifies pentaerythritol esters (see Table 1 at page 6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added the glycidyl ester of Kohashi et al to the refrigerator oil of Williamitis in view of Midgley, Jr et al and Slayton because said glycidyl ester suppresses the corrosion of metal components of the refrigerator apparatus and stabilizes the oil, as taught by Kohashi et al. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included an oil such as paraffinic mineral oil, naphthenic mineral oil, alkylbenzene oil, and polyolefin oil, and an additive such as antioxidants and antiwear agents, in the refrigerator oil of Williamitis in view of Midgley, Jr et al and Slayton because these are conventional materials that can be present with the refrigerator oil, as shown by Kohashi et al.

11. Claims 5, 10, 13-15, 18-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamitis in view of Midgley, Jr et al and Slayton, and further in view of Kohashi et al as applied to claims 4, 6, 8, 9, 11, 12, 16, 17, and 21 above, and further in view of JP 55-155093, herein referred to as JP '093.

Williamitis in view of Midgley, Jr et al and Slayton, and further in view of Kohashi et al, as relied upon for the reasons recited above, teaches the limitation of claims 5, 10, 13-15, 18-20, and 22, other than the presence of the instant phosphorus compound. JP '093 teaches that the addition of trimethyl phosphate to a pentaerythritol ester refrigerator oil helps to prevent corrosion (see the attached English abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the trimethyl phosphate additive of JP '093 in the refrigerator oil of Williamitis in view of Midgley, Jr et al and Slayton, and further in view of Kohashi so as to prevent corrosion, as taught by JP '093.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,410,492 and EP 430657 A1 are hereby made of record.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Diamond whose telephone number is 703-308-0840. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m. ET.

Art Unit: 1753

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 703-308-3322. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

A handwritten signature in black ink, appearing to read "Alan D. Diamond", with a stylized flourish at the end.

Alan Diamond
Primary Examiner
Art Unit 1753

Alan Diamond
November 20, 2003